SYMPHONY OF THE SEAS

The Marine Environment

OUR PLANET

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PO Box 30552
Nairobi, Kenya
Tel: (254 20)7621 234
Fax: (254 20)7623 927
e-mail: uneppub@unep.org

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Director of Publication: Eric Falt
Editor: Geoffrey Lean
Coordinators: Naomi Poulton, David Simpson
Assistant Coordinator: Anne-France White
Special Contributor: Nick Nuttall
Distribution Manager: Manyahleshal Kebede
Design: Amina Darani
Producedy by: UNEP Division of Communications and Public Information
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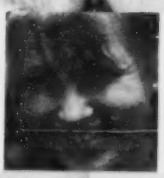

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reflections

by Achim Steiner, UN Under-Secretary-General and Executive Director, UNEP

Ducie atoll will not be familiar to most readers of *Our Planet*, but perhaps it should be. In many ways this tiny uninhabited speck at the far end of a Pacific island chain symbolizes the challenges of trying to sustainably manage the world's seas and oceans. A few years ago scientists recording new species on nearby Pitcairn Island went to Ducie out of curiosity. In a morning's stroll they catalogued almost 1,000 items of litter and rubbish — from old bread crates to plastic bags, a punctured football, discarded meat tins, and two toy cars.

This unattractive haul, collected almost 6,000 kilometres from the nearest continent is bad enough. But perhaps even more cause for alarm is the often invisible pollution and sustained over-exploitation of marine resources. Some months ago, UNEP launched its flagship report — Global Environment Outlook-4. Its point of departure is the 1987 Brundtland Commission. GEO-4 asks how we have fared in the past two decades. The answer, including on marine issues, is 'not very well'. In 1987 collapsed fisheries numbered 15 per cent globally. GEO-4 says this has now roughly doubled to 30 per cent. Twenty years ago a fifth of fish stocks were over-exploited; this has now risen to about 40 per cent. In 2004, there were around 149 dead zone sites — often vast areas of seasonal, occasional or even permanent de-oxygenated water. New assessments put the total at 200.

The case of dead zones and of Ducie atoll underline a further reality: managing a transition back to healthy and productive seas and oceans will require the international community to address the link between activities on land and their impacts on the marine world. Sewage, solid wastes and fertilizers, sediments, chemicals and even nuclear materials almost inevitably migrate to coastal waters. Scientists are also increasingly concerned about the impacts of greenhouse gases, especially carbon dioxide, which may trigger acidification of the seas, affecting corals and shellfish and, indeed, knock the entire food chain.

Among the central international responses to marine management are the UNEP Regional Seas and the UNEP Global Programme of Action (GPA). More than 60 countries — including Bangladesh, Barbados, Costa Rica, India and the Philippines — have developed action programmes, many of which have led to revised or new laws on coastal policy, water policy and integrated coastal management. Rehabilitation of coastal ecosystems, for example mangroves, is happening in countries such as Bangladesh, India, Nigeria and Sri Lanka, and the designation of marine protected areas, a potentially important management option, is accelerating from a pitifully low level. Mexico, for example, has established significant areas in the past five years.

The economic benefits can be significant. In Fiji, no-take zones and better management of marine areas has increased species such as mangrove lobsters by 250 per cent a year, with annual increases of 120 per cent in nearby waters. Meanwhile, the integration of coastal and inland river basin management is also evolving. The Global Environment Facility is supporting this approach, as well as integrated management of shared living marine resources in the Caribbean. There are many success stories. And there is cause for optimism in other fora, such as in the World Trade Organization with respect to fisheries subsidizes. But, as GEO-4 concludes, while we have rolled the multilateral response out across many sustainability challenges, including marine, we have not matched the magnitude or the pace of the challenge.

Part of the response must come from partnerships between the UN, governments, business, civil society and citizens. I am pleased that the work of the GPA, for example, has been endorsed by industry bodies, including those covering dredging and ports and harbours. The response must also include monitoring, compliance and enforcement of existing agreements, backed by the resources needed to realize their potential.

The key missing link is economics. The world must learn to truly value marine ecosystems and safeguard their enormous income generating potential. Sometimes these economic benefits are overlooked. Take the parrot fish as an example. In Kenya, the Watamu Marine Reserve is a magnet for tourists keen to experience its classic blue sea and bright white sand. According to local naturalist Richard Bennett, parrot fish chomping on coral heads each generate one kilogram of fine white sand a day. Remove parrot fish from the equation by polluting or over fishing and you not only say goodbye to attractive marine organisms, but goodbye sand, tourists and economically important foreign exchange.

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Cover photo © SHINICHI EGUCHI/ amana images/ Gallo Images/ Getty Images. Complex, beautiful, awe-inspiring, yet fragile, the marine environment is the theme of this edition of Our Planet. Seen from space, Earth is the blue planet. Oceans cover around 71 per cent of the Earth's surface, and are home to a vast proportion of the world's wildlife and plants. But the world's oceans and seas – from the Antarctic to the Caribbean – are under increasing pressure from pollution, global warming and species depletion. Preserving their fragile ecosystems is a key component of reversing the planet's environmental decline.

flexible instrument

by Conrad C. Lautenbacher

Nearly 80 per cent of all marine pollution originates on land. Though the scientific community discussed the implications of land-based marine pollution for decades, "out of sight, out of mind" seemed to rule policy decisions. This mentality gradually changed, however, as more people came to understand the interconnected nature of the planet's environmental systems.

Policy makers began to understand the importance of a healthy marine environment to the quality of life on land. More importantly, they started realizing the implications for the marine environment of decisions made on land, and sought solutions to mitigate their harmful effects.

The 1992 Earth Summit in Rio de Janeiro was a critical moment where political will began to catch up with scientific vision. Nations committed to protect the marine environment in general, and specifically to initiate a global effort to combat land-based sources of ocean pollution. The political support generated at the summit was solidified in 1995 when over 100 nations and the European Commission adopted the voluntary Global Programme of Action for Protection for the Marine Environment from Land-Based Activities (GPA), providing guidance to policy makers and resource managers to prevent, reduce, and control ocean pollutants.

Marine pollutants originate from a variety of land-based sources — including agriculture, near-shore and inland development, and coastal industry. And each country has its own policy priorities and limitations. The GPA successfully addressed these issues by prescribing a great deal of flexibility in how nations could meet larger environmental goals.

Environmental sustainability and economic viability are inextricably linked. While much attention is focused on the tension between the environment and economic activity, the reality is that they are inherently co dependent. Consider:

- 61% of the world's total economic output comes from areas within 100 kilometres of the coast.
- Marine tourism, marine fisheries, and aquaculture are estimated to provide global economic benefits worth $161 billion, $80 billion, and $57 billion respectively.
- 70% of cities with populations over eight million are located on coasts and 38% of the global human population lives along a narrow strip of coastal land constituting only 7.6% of the Earth's total land area.
- In some countries, up to 90% of all sewage is dumped directly into the ocean.
- Approximately half of the world's coastal wetlands have disappeared.

Much economic vitality is built on the basis of a healthy, vibrant environment. At the same time, economic growth makes it easier to pursue policies and actions that promote environmental sustainability. The key to achieving this balance is to develop policies that remain flexible to changing needs and priorities.

The GPA has succeeded largely because of its flexibility. It is drafted to provide guidance at international, regional, and national levels — and so can be used to address problems associated with land-based sources of marine pollution at all of them , or at the one most appropriate for the situation. It has, for

example, guided the development both of the Arctic Council's Regional Programme of Action, and of a number of National Programmes of Action in such countries as Iceland, Canada, and Russia. The regional plan focuses on transboundary problems, such as persistent organic pollutants (POPs), while national ones focus on domestic issues.

The GPA is also flexible in its breadth. It addresses all major land-based sources (such as sewage, nutrients, heavy metals, POPs, oils, radioactive substances, litter, sediment mobilization, and physical alteration and destruction of coastal zones) rather than focusing on a single one. This allows lessons learned from managing one source to be applied, where appropriate, towards managing others.

As it is not legally binding, the GPA also allows nations to take action based on the particular needs and capacities of their economies and institutions. It recognises that one size will not fit all, and that administrative and management capabilities vary, based on national circumstances. It also provides assistance to governments when developing and implementing their National Programs of Action. My agency, National Oceanic and Atmospheric Administration (NOAA), for example, has helped 12 countries in the wider Caribbean with developing NPAs by working with the GPA Coordination Office and serving as a clearinghouse for information on land-based sources of pollution.

The GPA can also adapt to political trends and 'hot issues.' UNEP participants recently raised the topic of nutrient loading, which, while certainly not a new problem, has gained public visibility of late. Nutrient enrichment — in the coastal environment, the concern lies with nitrogen — is a particularly cogent issue to address through the GPA structure. It tends to cross geopolitical boundaries and scientific disciplines and affects different areas in different ways, making the need for information sharing and maximum flexibility most important.

Ultimately, as its name suggests, the GPA is designed to lead to action. In response to the increasing public concern over nitrogen loading, the UNEP/GPA Coordination Office recently held an informal meeting on reactive nitrogen in the environment where participants agreed to form a Global Partnership on Nutrient Management that will support a number of joint activities to address the impacts of excess nitrogen in coastal and marine ecosystems. This GPA-led response will ensure that the 2006 Beijing Declaration — in which participating governments resolved "[to]devote additional effort, finance and support to address point and non-point source nutrients…as major and increasing source categories directly affecting human health, well-being and the environment" — is actualized.

It is readily apparent, when considering environmental challenges like land-based sources of marine pollution, that our world is increasingly connected. Since rivers and oceans span political boundaries, managing them must be integrated and flexible. The GPA, when utilized locally, regionally, and globally — from headwaters to coasts to seas — can provide our leaders with the information needed to promote the safety of our citizens, the growth of our economies, and the effective management of our planet's precious resources.

verbatim

"The sea, the great unifier, is man's only hope. Now, as never before, the old phrase has a literal meaning: we are all in the same boat."

Oceanographer Jacques Yves Cousteau

"How inappropriate to call this planet Earth, when it is quite clearly Ocean."

attributed to Arthur C Clarke

"[My son] died in the sea with 81 young people who were all fishermen and all from our village.... From our forefathers, all our families are fishermen. The men used to go and fish, the women used to buy and sell their products."

Yayi Bayam Diouf, leader of a Senegalese women's development group working to stem migration. Mrs Diouf says poverty resulting from the declining fish stocks is the major reason why young people are prepared to risk drowning in the Atlantic Ocean to reach Europe.

"Aquatic ecosystems continue to be heavily degraded, putting many ecosystem services at risk, including the sustainability of food supplies and biodiversity. (...) Total marine catches are being sustained only by fishing ever further offshore and deeper into the oceans, and progressively lower on the food chain."

UNEP GEO-4 report

"The [new IPCC] report has put a spotlight on a threat to the marine environment that the world has hardly yet realised. The threat is immense as it can fundamentally alter the life of the seas, reducing the productivity of the oceans, while reinforcing global warming."

Achim Steiner, Executive Director of UNEP

"When I was a small boy this island was big. As I grew older the island got smaller. The island has broken and it is now in two pieces. Now the sea is eating the island away very quickly; the islands are growing smaller and smaller."

An islander from Carteret in Papua New Guinea quoted in a Friends of the Earth documentary.

"Donors must take steps to reduce greenhouse gas emission. Climate change will inundate parts of Bangladesh, make millions homeless and increase food deficit in the country."

C.S. Karim, environment and agriculture adviser to the interim Bangladesh government

numbers

1/3
Proportion of Africa's existing coastline which could be swallowed up by rising water levels brought on by global warming – *UNEP projections*

61
Percentage of coral reef areas in the Caribbean which are under threat from pollution and overfishing

35,000
Number of ship-borne tourists to the Antarctic in 2006-07 – there were 5,000 in 1992-93

80
Percentage of marine pollution originating from land-based activities

38 million
Number of people who rely on fisheries for direct employment. Most are in Asia and the Pacific (97% of world total)

86
Percentage of sewage which goes untreated into rivers and oceans in Latin America and the Caribbean

6
Factor by which the exploitation of West Africa's fish resources by EU, Russian and Asian fleets increased between the 1960s and 1990s

6 billion
Projected coastal population by 2025

Unless otherwise indicated, all facts are from UNEP's GEO-4: Global Environment Outlook: http://www.unep.org/geo/geo4/media/index.asp

Environmental concern is rightly growing as is genuine fear that — if we do not change our ways — the damage we inflict on our planet will render it incapable of sustaining, for future generations, the economy to which we have grown accustomed. Pressure is mounting for every potential polluter, every energy user and every conspicuous contributor to global warming to clean up their acts and adopt greener practices.

Since it began functioning in 1959, the International Maritime Organization (IMO) — the United Nations specialized agency with responsibility for safety and security at sea and prevention of marine pollution by ships — has adopted a wide range of measures to prevent and control such pollution and to mitigate the effects of any damage from maritime operations.

Statistics show that shipping is the least environmentally damaging mode of transport, when its productive value is taken into consideration: the vast quantity of grain required for the world's daily bread, for example, could not be transported any other way. And set against land-based industry, shipping is a comparatively minor overall contributor to marine pollution.

IMO adopted the International Convention for the Prevention of Pollution from Ships, universally known as MARPOL, in 1973. Much expanded and updated, it remains the most important international convention covering such pollution, whether from operational or accidental causes. Its six annexes set out regulations on pollution from ships by oil; by noxious liquid substances carried in bulk; by harmful substances carried by sea in packaged form; by sewage; by garbage; and of the air. With other measures, it has laid the foundation for substantial and continued pollution reductions — despite a massive increase in world seaborne trade. The average number of spills of over 700 tonnes of oil from ships each year, for example, shrank from over 25 in the 1970s to just 3.7 in the 2000s.

MARPOL advocates a global approach, but recognizes that some areas need greater protection than others. So it defines "Special Areas" of sea, with very strict mandatory anti-pollution measures. Meanwhile IMO has adopted criteria for identifying and designating "Particularly Sensitive Sea Areas", requiring an even higher degree of protection because of their particular ecological, socio-economic or scientific significance and vulnerability to damage by international maritime activities.

IMO's safety related conventions — such as the International Convention for the Safety of Life at Sea (SOLAS) — help to ensure that accidents do not happen in the first place, while other environmental conventions cover preparedness, response and co-operation in tackling pollution by oil and hazardous and noxious substances — and the right of States to intervene on the high seas to prevent, mitigate or eliminate danger to their coastlines or related interests from pollution following a maritime casualty.

In February 2004, IMO adopted the Ballast Water Management Convention, addressing the immense damage that can be caused by microscopic aquatic life transported around the world in this way and deposited in alien local ecosystems, threatening to disrupt their delicate balance. And a convention banning the use of harmful anti-fouling paint on ships' hulls will enter into force next September.

There was a major change of approach on regulating the use of the sea as a depository for wastes, when, in March 2006, a protocol to the 1972 Convention

on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter entered into force. Effectively, dumping is now prohibited, except for materials on an approved list. Last May IMO adopted a new convention on the removal of wrecks that may present a hazard to navigation or a threat to marine and coastal environments — or both — and it is developing a new mandatory instrument on ship recycling, due for adoption in 2009.

Atmospheric pollution now presents perhaps the most significant environmental threat. IMO is reviewing the existing MARPOL Annex VI which sets limits on sulphur oxide and nitrogen oxide emissions from ship

ship shape

by Efthimios E. Mitropoulos

exhausts; prohibits deliberate emissions of ozone-depleting substances; and puts a global cap on the sulphur content of fuel oil. When this revision is completed, it will also cover particulate matter and volatile organic compounds.

IMO also has an action plan to reduce ships' emissions of greenhouse gases, particularly carbon dioxide, which are not covered in the annex. It is co-operating closely with international shipping and UN bodies to ensure that the issue is tackled truly internationally, avoiding unhelpful unilateral regional or national action.

Meanwhile, UNEP has developed a series of regional action plans — including regional conventions to protect the marine and coastal environment and protocols on combating marine pollution in an emergency. IMO has helped formulate these protocols and ensured an important degree of harmonization of their relevant provisions. It has also become involved in the aftermath of marine pollution incidents from other sources, collaborating with other United Nations agencies where appropriate. In 2006, for example, it helped to draw up and implement an action plan to help the Lebanese authorities clean up coastal oil pollution following an air-strike on a refinery. The plan was agreed at an international meeting convened by IMO and UNEP, and its execution supervised by the IMO-administered Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) and Lebanon's Minister of the Environment.

REMPEC was the world's first regional centre under UNEP's Regional Seas Programme, which IMO wholly supports. Shipping is a world-wide industry requiring internationally agreed standards and rules. Regional co-operation and collaboration are important in promoting global, uniform and effective implementation and enforcement of international standards, the key objective of IMO's global technical co-operation programme.

IMO also links with UNEP via the Regional Marine Pollution Emergency, Information and Training Center for the Wider Caribbean Region (REMPEITC-Carib), which helps the region's countries prevent, prepare for and respond to major pollution incidents. The two agencies are also partners, with others, in the UN Group of Experts on Scientific Aspects of Marine Environmental Protection (GESAMP) and in the UN system-wide Environmental Management Group. And the GloBallast Partnerships project to help developing countries reduce the transfer of harmful aquatic organisms in ballast water — executed by IMO, in partnership with the Global Environment Facility and the United Nations Development Programme — relies on UNEP's support through its Regional Seas Programme offices.

These examples of co-operation highlight how IMO's work in protecting the marine environment must be part of a broad-based effort in which everyone has a responsibility and a role to play, a concept reflected in the maxim: "Think globally — act locally".

This year the IMO Council selected environmental issues to be the theme for World Maritime Day, celebrated on 27 September 2007. They have been the centrepiece of a host of IMO activities and initiatives to educate people, increase their awareness about the true, and deteriorating, state of the planet, and help us all to become responsible citizens. For, when it comes to the environment, what everyone does, every day, really does matter.

acid oceans

by Ulf Riebesell

Complete darkness surrounds us as we slowly descend towards the ocean floor. The numbers on the instrument panels of our submarine, JAGO, change rapidly: the depth increases to 160 metres, the temperature cools to 4 degrees Celsius. Suddenly a mysterious world unfolds in the beam of our headlights. White and pinkish mounds of coral grow side by side, building reefs as large as football fields. The colourful formations are a hub of activity. As we peer out of our port hole, fish, crabs and tiny shrimp pass by.

Like their tropical counterparts, cold water corals provide a habitat for a myriad of marine life. These hotspots of deep sea biodiversity have only become known to us in the last ten years. Like pearls on a necklace, reefs of cold water corals extend along the eastern margin of the Atlantic Ocean over a length of 5000 kilometres, from northern Norway to the African coast. As we glide over the reefs admiring their silent beauty, it is hard to imagine that these pristine ecosystems might soon be lost from our planet. Yet, if human carbon dioxide emissions continue to increase at present rates, corals in large expanses of the ocean will soon be living in seawater that corrodes their calcareous skeletons. The catch word for this process is ocean acidification: the pH value of seawater (a measure of its acidity) is steadily decreasing. Like osteoporosis in humans, the corals' calcareous skeletons will dissolve faster than they can rebuild them.

But how can such emissions endanger life in the ocean? The underlying process leading to ocean acidification is very simple, much simpler than the CO_2-induced changes in our climate system. Its origin lies in the absorption of massive amounts of man-made CO_2 by the surface ocean. Nearly half of the amount of the gas that has been released from fossil fuels through human activities since the beginning of the industrial revolution — over 500 billion tons of it — has been taken up by the ocean, as the largest habitat on our planet serves as its largest sink of greenhouse gases; in the long term, it is expected to absorb 90 per cent of all fossil fuel CO_2 released into the atmosphere. The acidification of seawater will continue to creep into the deep ocean, even long after emissions dwindle or come to an end. It may be described as a blessing for our climate system because it dampens CO_2-induced greenhouse warming — but it will prove to be a curse for marine life.

When carbon dioxide dissolves in seawater it forms carbonic acid. Part of it is neutralized by the carbonate buffer, a chemical reaction that consumes carbonate ions — the building material used by calcifying organisms to produce their shells and skeletons. The remaining acid leads to a decrease in the pH of seawater. The lower the pH value, the greater the concentration of hydrogen ions and hence the more acidic the water. The ocean's uptake of carbon dioxide from fossil fuels has already caused a pH decrease of 0.1 units, which corresponds to a 30 per cent increase in hydrogen ions. If current trends in CO_2 emissions continue, seawater's pH will decrease by about 0.45 units from pre-industrial times by 2100. This would be lower — and the rate of change faster — than has occurred for at least the past 400,000, and probably for the last 20 million, years.

This will affect not only cold water corals, but calcifying organisms in general. As the concentration of carbonate ions diminishes, the production of calcareous structures will become increasingly difficult. All calcifying species so far tested in laboratory simulations show a decrease in calcification in response to ocean acidification. Calcification is a widespread phenomenon among many marine organisms, extending from corals to mussels, snails, sea stars and sea urchins, to tiny calcifying unicellular animals and plants at the base of the marine food web. Even fish precipitate calcium carbonate to build some of their internal structures, such as calcareous platelets in their vestibular apparatus. Judging from current experimental results, there is a high risk that many calcifying groups may lose their competitive fitness to prevail in an ocean of increasing acidity. The consequences this may have for the marine food web are presently unknown.

Looking back in Earth's history, we can learn a lesson from the fossil record. When a comet hit the Yucatan Peninsula in northern Mexico 65 million years ago, massive amounts of calcium sulphate were blasted into the atmosphere. There it reacted with oxygen and water to form sulphuric acid. The amounts of sulphuric acid were sufficient to make the surface ocean corrosive for the calcareous shells and skeletons of surface dwelling organisms. It probably only took a few years until mixing with deep ocean waters neutralized acidification at the surface, but it was long enough to cause the extinction of nearly all planktonic calcifiers. Two million years went by before corals reappeared in the fossil record. It took a further 20 million years for the species diversity of calcifying groups to recover to pre-extinction levels.

Research on the effects of current ocean acidification is still in its infancy. No one knows how the negative responses observed experimentally on individual organisms will translate to communities and ecosystems. How will these responses be affected by other stress factors such as changing temperatures or the availability of nutrients? There is also a major challenge in determining the ability of sensitive organisms to adapt to ocean acidification. Despite much uncertainty, it is probably safe to say that continued ocean acidification will cause the loss of marine biodiversity, with presently unforeseeable consequences for marine ecosystems and food webs.

In its 1995 report, the Intergovernmental Panel on Climate Change (IPCC) published a series of scenarios of projected CO_2 emissions for the 21st century. Its worst case scenario was critically judged at that time as being far too pessimistic. But records over the past 10 years indicate that the actual trend in global CO_2 emissions is above the one in this scenario. Despite rising awareness of the problems associated with increasing levels of atmospheric CO_2, our efforts to turn this process around are still lagging behind. Ocean acidification and the associated risks to marine life provide yet another incentive to act quickly and decisively in order to reduce global emissions of carbon dioxide.

building knowledge

by Lee A. Kimball

For centuries the oceans have awed and inspired humanity, fuelling dreams of endless bounty, challenging ingenuity, and raising spectres of demons and guardian spirits. People have always been curious about the marine environment, but their need to understand it advanced slowly with early activities like sailing and fishing. This increased exponentially with the great expansion in human use after the middle of the 20th century, and now relates not just to activities like exploiting the ocean's living and mineral resources and the safety of international shipping, but to growing concern about the accumulating impacts of human activities.

Assuring present and future generations of ocean goods and services depends on productive, healthy, and resilient marine ecosystems. Decision-makers need to take a quantum leap in understanding how these systems interact with human society — that is, in ocean assessment.

Many recent, piecemeal reports chronicle deteriorating ocean resources and conditions, but few explain clearly how this affects human well-being. Some examine how technical and policy responses could ameliorate these trends, or whether policies already adopted have made a difference. This must become integral to ocean assessment so that decision-makers and the publics alike fully understand the consequences both of 'business as usual' and of proposed modifications to it.

The discovery of hydrothermal vent communities in 1977, initiated revelations of deep ocean life that have changed perceptions of the ocean floor as a vast wasteland. Earlier this year, DNA analysis of ocean microbes in surface waters revealed millions of new genes. An agreed means is needed rapidly to assess the implications of new findings in relatively unstudied fields both for the health and productivity of the oceans and for the Earth's biological and geochemical cycles.

The international scientific community has been evolving concepts of the relationships between species and with the environment in marine ecosystems for over three decades, but the international political community, at its highest levels, did not formally accept ecosystem approaches to ocean management until 2001. Ocean assessment needs to analyze the full range of pressures on species and environmental relationships that make up a particular ecosystem, including external ones. A global process can help ensure that cumulative impacts of human activities are taken into account at the appropriate geographic scale. It can foster the more detailed analyses needed by regional decision makers — covering pollution or debris from land-based and sea-based sources; the status of fish and other marine species and their habitat; invasive species; and the influences of freshwater systems, climate change and ozone depletion on regional marine ecosystems. It can also draw together regional and topical analyses to ensure that connections are made, for example, regarding: species that migrate great distances; long range air pollution; or the effects of changes in oceanic or atmospheric conditions over a large scale. Furthermore, it can help decision-makers anticipate emerging issues by providing a well-integrated picture of present conditions and trends.

Over the last sixty years, regional and global intergovernmental decision-making bodies have been established with responsibility for different sectors affecting the oceans. They have spawned a variety of mechanisms for collecting and assessing data and providing scientific advice. Their specialized mandates, however, mean that decision-makers in each body rarely see a coherent portrayal of the state of the marine environment, nor one that highlights the relative significance of the activities on which they focus within a coherent regional or global picture. A well-designed ocean assessment process, that bears these respective authorities in mind, can present such clear pictures.

Finally, the inevitable shift toward more integrated ecosystem approaches will entail assessments that rely on diverse fields of expertise. In a complex and changing marine world, there will be inevitable uncertainties, new concerns, and controversial issues. Moreover, the pace of acquiring knowledge in increasingly specialized fields will make it difficult to keep scientists, managers, and decision-makers up to date. A global ocean assessment process that fosters communications and networking among specialists can advance common scientific understanding and thus expedite international political agreement.

At the 2002 World Summit on Sustainable Development (WSSD) the international community agreed to "establish by 2004 a regular process under the United Nations for global reporting and assessment of the state of the marine environment, including socio-economic aspects ... building on existing regional assessments." The 2004 target proved unrealistic, but in 2005

the General Assembly launched an "assessment of assessments" (AoA) as a preparatory stage for the 'regular process', as it is called.

The AoA consists of (1) an overseeing ad hoc intergovernmental steering group, comprising ed of members from 18 countries and six international organizations; (2) UNEP and the Intergovernmental Oceanographic Commission of UNESCO as lead agencies, to provide secretariat services and coordinate the preparatory initiative, guided by the steering group; and (3) a balanced group of 20 experts, established by the lead agencies and approved by the steering group, to undertake the actual assessment of assessments.

The General Assembly stipulated that the AoA should bring together and review existing assessments in order to identify: thematic and/or geographic gaps in scientific knowledge and data collection, or in assessments; how existing resources could be incorporated into or contribute to a regular process; and scientific uncertainties where further research is needed. A second primary aim is to synthesize and highlight best assessment practices, and a third is to establish how previous assessments have been communicated to policymakers.

The group of experts (GOE) is also to consider the usefulness of, and constraints posed by, organizing assessment components on different scales — and how this could relate to integrated assessments. It is to analyze how existing assessments provide for scientific credibility, policy relevance, legitimacy, and usefulness — and consider the need for capacity-building to support the regular process. It is to bear in mind societal interactions with the marine environment and internationally-agreed goals and targets addressing human development and sustainable ocean use. Together these analyses will form the basis for the GOE to identify a framework and options to move forward to build the regular process, including potential costs.

The GOE has organized its review of assessments, based on a tentative breakdown into 21 ocean regions. These regional reviews will serve to identify gaps and best practices and the potential contributions of existing activities. Working primarily by email, it met twice in 2007 and plans three more meetings. Its report will be peer reviewed, and governments will have an opportunity in late 2008 to comment on and contribute to the development of the AoA. A final report will be presented to the ad hoc steering group before being submitted to the 64th UN General Assembly in 2009.

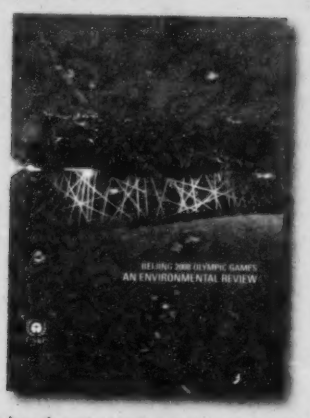
The core of the GOE's work in identifying a framework and options for the regular process will be:

- how to integrate into a coherent and meaningful whole the variety of sectoral and topical data collection and assessment initiatives, at regional and global levels;
- how to identify the most effective practices for conducting and communicating assessments so that decision-makers, managers, users, and publics receive the clear, well-founded, and timely information they need to ensure sustainable ocean use; and
- although institutional support for ocean assessment varies in different regions, how to assure a global framework that can strengthen regional arrangements and networks, facilitate inter-regional connections, and create a global overview that is greater than the sum of its parts.

books

www.unep.org/publications

Beijing 2008 Olympic Games – An environmental review



This report analyzes the projects implemented by the city of Beijing to incorporate environmental sustainability into the 2008 Olympic Games and fulfil the environmental commitments made during the candidature phase. Since 1994, organizing committees of the Olympic Games have progressively increased their focus on environmental issues — and they are now expected to leave a sustainable legacy and promote environmental awareness. UNEP's report analyses the environmental achievements of the Beijing Olympic Committee, and takes stock of successes and challenges in the run-up to next year's Olympic Games.

Mangroves of Western and Central Africa

This report presents a country profile for 19 countries of West and Central Africa, considering the status, distribution, biodiversity, uses, threats and drivers of change for their mangroves. Although there is considerable work being undertaken to research this habitat at the national, regional and global level, there are still significant gaps in information, emphasizing a need for continued efforts to improve assessment in the region.

Marine litter in the East Asian Seas Region

This review provides an overview of marine litter in the East Asian Seas region at both the regional and national levels, and makes recommendations and proposals for change. Areas covered include knowledge and data on the marine litter problem; instruments, programmes and initiatives on marine litter; and gaps and needs in relation to the prevention, control and management of marine litter. The review integrates contributions from governments across East Asia as well as information from marine science institutions and international environmental NGOs.

Planet Ocean: Voyage to the Heart of the Marine Realm

Laurent Ballesta and Pierre Descamp (National Geographic, 2007)

Written by an underwater photographer-cum-diver and a marine biologist, this book presents more than 400 photographs of extraordinary underwater landscapes from all over the world. The photos are accompanied by 25 essays by leading scientists highlighting topics from aquaculture to global warming – bringing a vivid description of the threats that weigh on the world's oceans and why we must protect the incredible diversity of plants and animals there. The World Conservation Union has partnered on the project to ensure an accurate, timely, and interesting presentation of this vital subject.

Antarctica: The Global Warning

Sebastian Copeland (Earth Aware Editions, 2007)

Award-winning photographer Sebastian Copeland documents the fragile glory of Antartica — capturing both the incredible beauty of the continent and the devastation that climate change is wreaking on it. Featuring a foreword by Mikhail Gorbachev, the book is a stark warning that humankind is gradually destroying one of the most extraordinary places on earth. The book earned Copeland the 2007 International Photography Award for 'Professional Photographer of the Year'.

The Clean Tech Revolution - The Next Big Growth and Investment Opportunity

Ron Pernick and Clint Wilder (Collins, 2007)

Ron Pernick and Clint Wilder look at the major forces which have pushed 'clean technology' to the forefront of big business, with multibillion-dollar investments by industry giants such as GE, Toyota, and Sharp. The book highlights eight major sectors in clean tech – solar, wind, biofuels, green buildings, personal transport, the smart grid, mobile applications and water filtration – and argues that clean technologies are opening up a world of opportunities for companies, entrepreneurs and investors.

Apollo's Fire: Igniting America's Clean Energy Economy

Jay Inslee and Bracken Hendricks (Island Press, 2007)

The 'Apollo Alliance' is an American advocacy group and think tank that brings together unions, environmental groups and business organizations committed to fostering a green economy. In this book, Washington State Congressman Jay Inslee and Bracken Hendricks, who is the founder of the Apollo Alliance, spell out ways to cut fossil fuel dependency and fight global warming. Their proposals include redesigning the car, investing in solar and wind power, and developing clean coal and safe nuclear power.

Peace Parks - Conservation and Conflict Resolution

Edited by Saleem H. Ali (MIT Press, 2007)

Although the 2004 Nobel Peace Prize was awarded to Kenyan environmentalist Wangari Maathai, few have considered whether environmental conservation can contribute to peace-building in conflict zones. Peace Parks explores this question, examining the ways in which environmental cooperation in multijurisdictional conservation areas may help resolve political and territorial conflicts. The book examines the roles played by governments, the military, civil society, scientists, and conservationists, and their effects on both ecological management and the potential for peace-building in these areas.

Ivan's Appeal

Catherine Drury (Stamford House Publishing, 2007)

This children's book puts an imaginative spin on the problem of global warming, with a conversation between Ivan the iceberg and two children on a family cruise in the Antarctic. Ivan appeals to 12 year-old Jo and 9-year-old Colin to help him to stop melting. This leads them to spread the word and inspire other children to take environmental action.

ne boat

For more than a decade, the Ecumenical Patriarchate, one of the oldest religious institutions in the world, has been labouring to draw attention to the deep existential crisis facing the modern world as a result of reckless human activities. While the world faces many grave environmental challenges, the overwhelming emphasis of our activities has been on the condition of the waters of the Earth: oceans, lakes, rivers and the entire biosphere in which water plays such a central role.

During seven floating symposia, attended by distinguished scientists, environmentalists and religious leaders, we have drawn global attention to the particular problems faced by certain ecologically sensitive stretches of water: the Aegean, the Black Sea, the Danube, the Adriatic, the Baltic Sea, the Amazon river and the Arctic Ocean. All these symposia have taken place on ships, making voyages through these beautiful but fragile places, and thus highlighting a simple truth. Regardless of our race, religion or economic class, we are "all in the same boat" in the sense that nobody can escape the consequences of a general environmental catastrophe, and nobody can avoid moral responsibility for avoiding it. Humanity will either sail onwards, or it will sink as a result of its own reckless abuse of God's providential gifts.

People sometimes ask us why the Patriarchate has laid such heavy stress on the water in its ecological activities and pronouncements. Perhaps the first and simplest answer is that an understanding of the primordial importance of water as a constituent of life is deeply engrained in our spiritual and liturgical tradition. That is true of all the Abrahamic faiths, which have their roots in a part of the world where water is scarce, and where it is natural to describe the human soul's longing for God as a desperate "thirst" for the thing it most needs. Every single evening, Orthodox Christians begin their worship by reciting the glorious Psalm of Creation (Psalm 104 in the Western numbering) which — just like the Creation story in the book of Genesis — seems to express the profound insight that maritime life preceded and made possible the life that later emerged on dry land. "O Lord, how manifold are Thy works! In wisdom hast Thou made them all: the earth is full of thy riches. So is this great and wide sea, wherein are things innumerable, both small and great beasts....."

The story of Our Lord Jesus Christ's encounter at Jacob's Well with a Samaritan woman is also very dear to Orthodox Christian hearts. Breaking the mould of sectarian division between Samaritans and Jews, Christ asks the woman to give him some water from this ancient source — and then proceeds to offer her the "living water" of perfect communion with God, the sort of water which eternally quenches all thirst. Through stories like this, we come to realize a deep truth: the acute need for water which all human beings experience is, from the Christian viewpoint, merely a pointer to an even deeper need — to live as our Creator intended. The nature of life in communion with God is a mystery that has been pondered and exemplified by holy men and women over many generations. One thing we know for certain is that God did not intend us to treat the earth's resources, or its waters, as something to be used exclusively for short term economic gain, without regard for other forms of life on earth or for future generations. During last year's symposium in the Amazon region, and during our visit to Greenland this year, we had the humbling experience of encountering indigenous cultures where the need to consider future generations — and to respect the integrity of ecological systems — is much better understood than it is in prosperous countries that are supposedly heirs of "Christian civilization".

The primordial importance of water, and the fact all of it (from the oceans to the clouds to tiny streams and oases) forms a single system, has been intuitively understood by traditional cultures, just as it was by the writers of our Scriptures and liturgical texts. In one of the loveliest hymns of the Orthodox Church, a woman devoted to Christ proclaims the words: "Receive the spring of my tears, You who draw water from the clouds..." There can hardly be a more beautiful expression of the truth that every molecule of water on earth, from the mightiest torrent to the tiniest tear drop, forms a marvelous, integral system.

In modern times, scientists have given more precise content to this intuitive understanding. They have told us, for example, that about 70 per cent of the human body consists of water — and that almost exactly the same percentage of the Earth's surface is covered by it. They have explained how water vapour in the atmosphere is one of the factors that keeps the temperature on Earth relatively stable. They have explained in ever greater detail the way water moves perpetually around a biosphere formed by sea, land and air, through evaporation and precipitation.

Both the ancient wisdom of our Scriptures and the modern insights of science point to a single truth: whenever there is disorder in the waters of the Earth — through rising sea levels, a shortage of fresh water, or extreme events like hurricanes and floods — that is a profoundly troubling sign for life on earth as a whole. The Ecumenical Patriarchate is ever more concerned about these signs, and the spiritual disorders which they highlight. But the Patriarchate will not lose faith in God's covenant with mankind, expressed in the story of righteous Noah who survived a terrible flood. Man may do his best to destroy the effects of God's covenant through his reckless and selfish abuse of the earth's waters and other resources; but God's offer of "living waters" — of human life in perfect harmony and synergy with the Creator — will never be withdrawn.

rethink,

UNEP's oceans and coasts programme has long been one of its flagships. It continues to be strong, but converging pressures are forcing it — and the international community — to rethink marine and coastal governance. The first, fundamental pressure comes from the research of a scientific community employing a new wealth of high-tech methodologies and instruments. Over the past decade, scientists have produced a series of alarming reports on emerging threats to marine and coastal ecosystems and to the well-being of the billions of people living near the oceans. The most prominent is global climate change, affecting ocean circulation, chemical and nutrient cycles, ocean acidity, ocean temperature and sea level. Another is the proliferation of 'dead zones' — areas, which can encompass 100,000 sq km of ocean, where algal blooms, stimulated by fertilizers and sewage, have consumed all the oxygen in the water and snuffed out life.

The high seas are also threatened. Illegal, unreported and unregulated fishing has thwarted international efforts to make their fisheries sustainable — while exploration of the seabed has revealed that fragile deep sea ecosystems are being destroyed, perhaps permanently, as seamounts are ravaged by heavy trawls. Scientists have also continued to document other threats and their causes, such as the growing coastal impact of urbanization and tourism, over-exploitation, and ever-increasing marine pollution from both maritime and land-based activities. The science can no longer be ignored by policy-makers or the public.

A second source of pressure comes from civil society — international NGOs, [illegible] groups — which has raised an outcry in response to [illegible] and has called for a host of new initiatives and actions to address [illegible]. The international community provides a third.

[illegible] UNEP and its partners have [illegible] in the field of oceans and coasts [illegible] Many partnerships [illegible]

ealign, redirect

by Ibrahim Thiaw

UNEP is therefore revising its priorities, as part of a new strategy for 2010-2013, in response to the challenges revealed by science. The strategy identifies ecosystem management as one of its six principle objectives, and UNEP has launched a process to identify elements within its divisions, which can contribute to a coherent marine and coastal programme which addresses this.

As part of this effort, it held a consultative — rethinking — meeting in August 2007 to: analyse emerging oceans and coastal issues; outline UNEP's capacities and potential; set some new priorities for the marine and coastal programme; and identify areas of work that need continued, and perhaps increased, attention. These priority areas, in turn, include: pollution from land-based activities; the physical alteration and destruction of habitats, including by aquaculture; the impact of climate change on oceans and coasts; marine and coastal biodiversity, including the deep seas; environmental aspects of fisheries, high seas and seabed management and governance; the vulnerability of islands; and chemicals and other hazardous substances affecting the marine environment.

Untold human and financial resources are wasted through duplicated, uncoordinated — and sometimes conflicting — efforts by UN agencies, international organizations, global conventions, regional and national authorities and others. The UN is tackling this problem through a reform initiative, called the 'One-UN' process, in which system-wide resources are used in concert. In keeping with this, UNEP is undergoing an intense process of self-reflection and organizational learning to create closer, more results-oriented partnerships among its divisions.

UNEP's work on marine and coastal issues has in the past taken place primarily within two programme areas — the Regional Seas Programme (RSP) and the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities (GPA). The RSP brings together governments from 17 regions, the scientific community, intergovernmental organizations and other stakeholders to assess marine environmental problems, and devise strategies, policies and management tools to deal with them. The GPA assists states in taking action at the national, regional or global level through a number of capacity building and technical programmes.

UNEP will continue to build on these programmes' undeniable strengths but will also develop new monitoring networks, identify pollution sources, and address problems, marine biodiversity, and coastal zone development. In these types of its new priority areas, it will work more closely and actively with [illegible] programmes, and with

The international community is now turning its attention to emerging priorities. The United Nations General Assembly has, for example, called on the international community to take urgent measures to protect deep-sea corals, seamounts and other vulnerable deep-sea ecosystems from the impact of bottom trawl fishing and other destructive practices on the high seas. Similarly, the Millennium Development Goals have offered a potential solution to problem of competition between development interests by linking poverty with oceans and coastal issues.

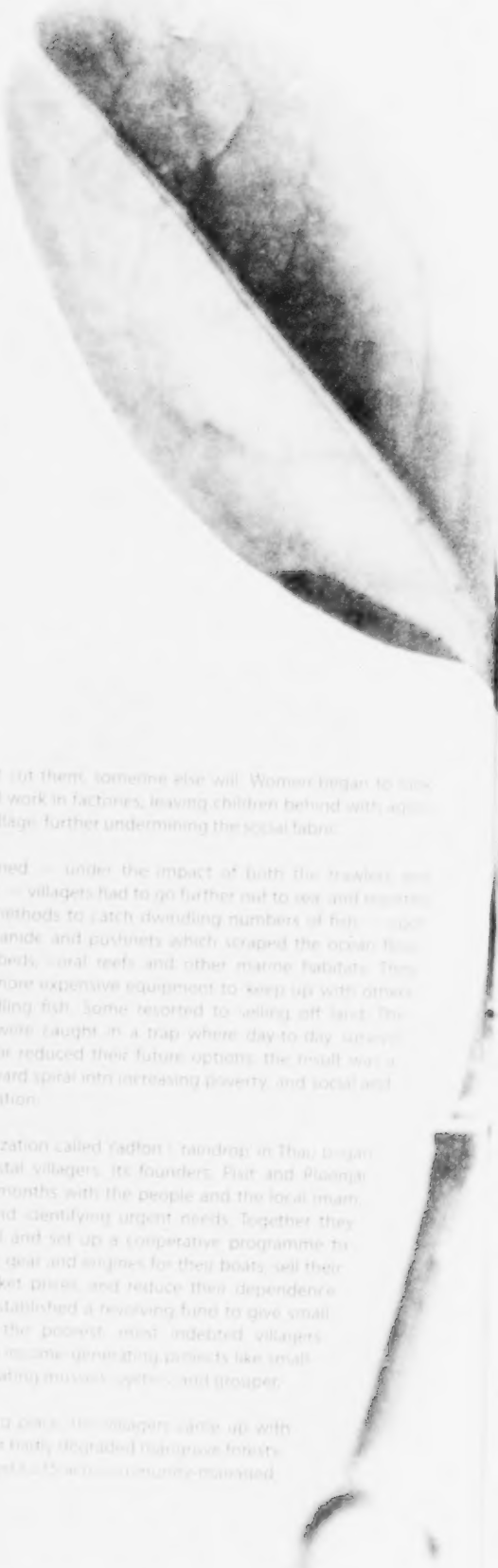
UNEP's consultative meeting came up with a new list of priority issues, some familiar and some new. Pollution from land-based activities and from hazardous substances has long been of concern, but new attention is now being paid to the problem of the physical alteration and destruction of coastal habitats. The impact of climate change on oceans and coasts, the vulnerability of small islands, and the loss of biodiversity in the deep seas are rapidly moving up the list as new scientific evidence pours in. And the priorities also address the plight of coastal human populations over such economic issues as fisheries and the exploitation of the high seas and seabed.

Under GPA's mandate, UNEP is focusing much of its attention and resources on problems related to population increase and construction in coastal areas and resulting habitat destruction through its the Physical Alteration and Destruction of Habitats Programme.

The RSP, meanwhile, is one of UNEP's key instruments for implementing the decisions of global intergovernmental forums on these issues — but it can only fulfil this role if its scientific credibility is acknowledged. It has recently adopted a new set of strategic directions, and is strengthening its scientific underpinnings with greater emphasis on monitoring and assessment and on cooperation with UNEP's scientific partners and specialized agencies. Individual regional programmes are being asked to improve their scientific base and their capacity to follow scientific issues. It is also devoting more effort into assessing the impact of climate change on the marine and coastal environment — and the likely knock-on effects on fisheries, tourism, human health, marine biodiversity, coastal erosion, and small islands ecosystems — to provide data to underpin new regional adaptation strategies.

Whatever its approach, alignment and direction, UNEP's coastal and oceans work must continue to be firmly grounded in scien[illegible] crucial emerging issues identified by scientists must find their way more quickly onto its shortlist of priorities. More than ever we need to understand what is happening to the marine environment, so we can take effective and concerted action before

tipping points



Mangroves — the rainforests by the sea — cover one-quarter of the Earth's tropical and subtropical coastline. Occupying two worlds, as the interface between land and sea, they are vital for healthy coastal ecosystems, which in turn support healthy fisheries — and, indeed, themselves act as nurseries for fish. They increase the resilience of coasts, protecting them from erosion, tropical storms and tidal waves. They trap sediment running off the land, safeguarding seagrass beds and coral reefs from siltation. And they function as a natural 'supermarket', providing necessary materials to those who depend on them — such as fruits, honey, other foods, fuelwood, medicinal plants and construction material. But they are also among the world's most threatened habitats and their rate of disappearance is accelerating with the conversion of coastal lands for development, charcoal production, tourism, and the controversial practice of shrimp aquaculture.

From 1975 to 1993 about half the mangroves along Thailand's 2,560 kilometre coast were lost. This had devastating effects, for example, in Trang province, some 800 kilometres south of Bangkok on the western shore of the Andaman Sea. Until the 1960s, its coastal villages largely subsisted on fishing while depending on the mangroves for medicinal plants and materials such as thatch for housing and fishing gear. Then the mechanization of fishing set into motion a range of effects, which seriously undermined the villages' natural and social capital. Large commercial trawlers violated the 3km coastal zone where the villagers fished. Their destructive gear and methods damaged coral, scraped the seabed, and cleared out young fish which had not yet reproduced, but villagers were afraid to confront them.

At much the same time, mangrove forests were opened up to concessionaires who began clearing them for charcoal production. Some of the poorest villagers saw no other option than to accept low-paid jobs cutting mangroves for concessionaires or on commercial trawlers, destroying their own resource base. Villagers also began clearing the mangroves themselves, with the attitude that 'if I don't cut them, someone else will'. Women began to look for unskilled, low paid work in factories, leaving children behind with aging grandparents in the village, further undermining the social fabric.

As the fisheries declined — under the impact of both the trawlers and mangrove destruction — villagers had to go further out to sea and resorted to more destructive methods to catch dwindling numbers of fish — such as using dynamite, cyanide and pushnets which scraped the ocean floor, damaging sea grass beds, coral reefs and other marine habitats. They also had to invest in more expensive equipment to keep up with others in the race for dwindling fish. Some resorted to selling off land. The coastal communities were caught in a trap where day to day survival strategies eliminated or reduced their future options: the result was a self-reinforcing downward spiral into increasing poverty, and social and environmental degradation.

In 1985, a small organization called Yadfon ('raindrop' in Thai) began to work with the coastal villagers. Its founders, Piak and Ploenjai Charnsnoh, talked for months with the people and the local monk, building confidence and identifying urgent needs. Together they dug a community well and set up a cooperative programme to help fishers buy fishing gear and engines for their boats, sell their daily catch at fair market prices, and reduce their dependence on middlemen. They established a revolving fund to give small interest-free loans to the poorest, most indebted villagers, helping them to set up income-generating projects like small-scale aquaculture cultivating mussels, oysters and grouper.

While all this was taking place, the villagers came up with the idea of reviving their badly degraded mangrove forests. A group of villages created a 15-acre community-managed

living laboratory

by Sandra Bessudo

Ours is an ocean planet: 70 per cent of it is covered by the seas, and it is in them that all life originated. Yet we have done far less to protect the marine environment than the far smaller part of the planet that is dry land. While almost 13 per cent of the Earth's land surface is covered by officially designated protected areas, less than 0.6 per cent of the oceans are similarly safeguarded, even on paper. And WWF estimates that less than ten per cent of these marine protected areas achieve their management goals and objectives in practice. The leaders attending the 2002 World Summit on Sustainable Development in Johannesburg resolved to address this, promising to increase the numbers of marine protected areas, and to establish networks of them.

For the past twelve years, Colombia has protected and managed its extraordinary Malpelo Island and the waters around it. The summit of a submerged mountain range, rearing up from 4,000 metres below the surface off the Pacific Ocean — some 490 kilometres west of the port of Buenaventura — the rocky mass of the island rises to 300 feet above sea level. It was declared a Fauna and Flora Sanctuary by the Colombian National Park System in 1995 and six miles of ocean around it were added the next year. Finally in 2005 the marine protected area was expanded to 25 nautical miles around the island, becoming the world's ninth largest "No Take" area with a total area of 8,575 square kilometres.

It has achieved a high degree of international recognition. In 2002, the International Maritime Organization declared the marine protected area as "Special Sensitive Zone". The Sanctuary was declared an Important Bird Area by BirdLife and the Alexander Von Humboldt Institute, and recognized as a World Heritage Site by UNESCO in July 2006.

Malpelo is a natural living laboratory, as several international and national surveys have proved. Since 1998, the Colombian National Park System — with the direct support of the Colombian Navy and the Malpelo Foundation — have conducted annual expeditions to study and monitor species and ecosystems of local, regional and global importance. Since 1985, when the Colombian Navy placed an outpost in the island for surveillance and sovereignty purposes, the government has had a permanent presence there.

At first glance, the island may look barren, but it is home to a very special fauna well adapted to its rocky substrate. The land ecosystem depends on nutrients from the sea, on the guano produced by sea birds and on its scarce vegetation. At least four land species are endemic: one crab, a gecko and two lizards. It is also home to the world's largest breeding colony of Nazca Booby — containing a third of the seabird's total population — and to other species of boobies , frigates, tropical birds, petrels and seagulls. Some of the species are migrants, endangered by habitat destruction, over fishing and pollution.

The seas around the island contain at least seventeen hard corals: though their formations are not very extensive, they are very well preserved and, with the rock walls, are home to a profuse marine fauna. Several species of sharks — such as Hammerhead sharks and Galapagos sharks — gather around the island during the day both to feed and to be cleansed of skin parasites by butterfly, labrid and angel fish at so-called "cleaning stations". Great aggregations of over 1,000 Silky sharks have been observed around the island, though the reason for them remains a mystery. Malpelo is also one of the only places worldwide where the Smalltooth Sandtiger shark — which visits during the first months of the year, when the water is colder — can be observed in its natural environment. Divers often see whale sharks, giant manta rays and several species of sea turtles — and they and photographers consider Malpelo to be one of their top destinations worldwide.

Unfortunately, the Sanctuary is faced with several threats. The most important — and hardest to control — is illegal fishing. Colombian and overseas vessels patrol the area and enter the Sanctuary, causing great damage by taking hundreds of sharks and tunas, irresponsibly threatening the species during very sensitive life cycles . There is also uncontrolled, industrial fishing around the area, which is greatly affecting the communities of sharks, marlins, tunas and dolphins. Ecotourism, when not managed correctly, can also affect the ecosystems, which are often of high biological importance and highly vulnerable.

The Colombian National Park Unit, the Colombian Navy, Conservation International and the Malpelo/ MarViva Foundation have joined to develop projects for conserving the Sanctuary. One of the most important and effective is refitting a boat, which has already contributed greatly by patrolling and surveilling the area. The Foundation is also working on a cutting edge satellite and acoustic telemetry project to determine movements of sharks, which has already produced very promising results showing the movements of hammerhead sharks in the Eastern Tropical Pacific (ETP) region.

Three years ago, the four countries of the ETP signed up to a regional initiative linking six marine protected areas: Costa Rica's Cocod and Baulas National Parks; Panama's Coiba National Park; Ecuador's Galapagos National Park; and the Gorgona National Park, as well as Malpelo in Colombia. It aims primarily to conserve ecological processes, both locally and regionally, as well as generating effective political management to guarantee the sustainability of the fishing resource and the protection of species, especially endangered ones.

people

A quarter of a million trees are being planted across Kurdistan for the Billion Tree Campaign thanks to **SAADIYAH HASSOON**, a chemical engineer and environmentalist from Iraq. The former

head of the environmental protection department in Iraq's ministry of industry, Hassoon went on to found the NGO 'Together to protect humans and the environment' which organized the planting of more than 6,000 trees in schools and orphanages in Baghdad. Her current project — with the motto 'Planting trees is a symbol of peace' — took on a new level of ambition when the Kurdish agriculture ministry agreed to provide 250,000 seedlings. The Kurdish ministries of environment, education and defence are also contributing to the project's costs and logistics, as are Greenpeace, the Kirkuk union for agriculture and local newspaper Alsabah Aljadeed. While Iraq's political situation is still unstable, this campaign's impressive momentum can be seen as a sign that tree planting can be the seed of peace and cooperation even in the most conflict-ridden corners of the world.

Bahamian **DON COOPER** has been named

the new Executive Secretary of the Stockholm Convention and Co-Executive Secretary of the Rotterdam Convention. Having participated in negotiations of international agreements since the early 1980s for the Government of Bahamas, Cooper has most recently been a Council member for the Caribbean Constituency with the Global Environment Facility. He was also a member of the Bureau for the 23rd session of the Governing Council/Global Ministerial Environment Forum. Cooper is an experienced leader and manager who has demonstrated determination and ability to place the environment at the top of the agenda in the Caribbean and beyond. He took up his new position with the Stockholm and Rotterdam Secretariats on 1 November.

On 12 October, **RAJENDRA PACHAURI**, the chairman of the Intergovernmental Panel on Climate Change, found out that

his organization had been awarded the 2007 Nobel Peace Prize along with former US Vice-President Al Gore. "I can't believe it. I'm overwhelmed," he said. "It is really the scientific community that contributes to the work of the IPCC and the governments who support the work of the IPCC who are really the winners of this award." The prize was awarded "for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change". Under Pachauri's watch, the world's top authority on global warming has issued a series of increasingly grim reports on the state of the planet, helping to put climate change at the heart of the public debate. When it announced the prize, the Nobel committee commended the IPCC for creating "an ever-broader informed consensus about the connection between human activities and global warming". Pachauri is also the founding director of the Energy and Resources Institute, a leading environmental think-tank in India.

LEONARDO DICAPRIO is the latest prominent Hollywood star to have joined the environmental fray. Echoing the

concern raised in Al Gore's 'Inconvenient Truth', his film 'The 11th Hour' documents the grave problems facing the environment, from global warming to deforestation and species extinction. The documentary, written, produced and narrated by DiCaprio, calls for people to reshape global human activity through technology, conservation and social responsibility. It features dozens of prominent thinkers and environmentalists from around the world including Stephen Hawking, Nobel laureate Wangari Maathai and UNEP Champions of the Earth Mikhail Gorbachev and Sheila Watt-Cloutier.

TOMMY REMENGESAU JR, the President of Palau, has devised a bold environmental programme to preserve his Pacific island from encroaching climate change: his government has set aside 20 per cent of the country's land area and 30 per cent of the ocean close to its shore for conservation. Remengesau says the Pacific islands are already experiencing global warming — with coral bleaching, rising sea levels and drought — and is calling for islands across the region to join the fight.

"It is simply time. Time for each Pacific leader to make conservation a priority," he told 20 island leaders at a Pacific Island Conference of Leaders in May. Several of Palau's neighbours, including the Marshall Islands and Micronesia, have already adopted the programme.

Chilean President **MICHELLE BACHELET** recently accompanied UN Secretary General Ban Ki-Moon on a trip to a Chilean research base in Antarctica in order to

observe the effects of global warming first hand — a trip which prompted Ban to make a strong call for action against climate change. As well as being one of the first women leading a major Latin American country, Bachelet brings a heightened awareness of environmental and social issues. She has put poverty high on her agenda, and she signed ten commitments with renowned Chilean eco-leaders as part of her presidential campaign. In September, at the UN's high-level meeting on climate change, Bachelet likened our planet to an island in the universe. "We can destroy it," she told the 80 heads of states at the meeting, "or save it."

awards and events

heroes of the environment

Every year, Time Magazine produces a double issue celebrating the year's "heroes" – people from all walks of life who have made a difference in the world. This year's theme was **"Heroes of the Environment"**, recognizing "the most innovative and influential protectors of the planet". As Time editor Michael Elliott put it: "2007 has been no ordinary year; it has been the time when issues to do with the environment — species depletion, air and water pollution, and of course climate change — have forced their way into our debates, whether we have them around the family dinner table, or in the conferences where the world's leaders meet". The 42 nominees range from the obvious to the obscure, with categories ranging from 'leaders and visionaries' to 'activists' to 'scientists and innovators'. Household names include Wangari Maathai, Al Gore and Prince Charles — but the list includes plenty of newcomers to environmental accolades, such as Karl Ammann (a photographer and campaigner for the great apes), Abul Hussam (a chemist who devised a way to purify arsenic-poisoned water) and Russian environmental activist Olga Tsepilova (a Russian environmental activist). Longtime 'green' figures like Robert Redford sit alongside more unorthodox choices such as British entrepreneur Richard Branson and solar power billionaire Shi Zhengrong. The nominations also reward big business as well as grassroots movements: the Toyota Prius design team qualified, and so did a non-profit lending group created by two Japanese rock musicians to finance environmentally friendly projects.
http://www.time.com

green awards

The UK's **Green Awards**, launched in 2006, set out to recognize outstanding creative work that communicates the importance of corporate social responsibility, sustainable development, and ethical best practice in any sector and across any marketing discipline. The awards are open for brands promoting anything from fair trade and renewable energy to resource efficiency and waste awareness. The argument is that as marketing is a key driver of economic growth, it is well placed to become a key driver of responsible growth. At this year's event, the Grand Prix went to Honda for their Formula 1 team's environmental initiative. The campaign featured a striking image of the earth, instead of the usual sponsor logos, on the racing team's cars. The choice caused some controversy — unsurprisingly, given that Formula 1 is not usually seen to deserve plaudits from environmentalists. But the organizers argued that the debate should be seen as a positive function of the awareness raising exercise. Indeed, a Honda spokesperson noted that if 1 per cent of fans who follow Formula 1 were to switch to energy saving light bulbs, the resulting energy savings would mitigate the emissions produced over three seasons by Honda's racing team.
http://www.greenawards.co.uk

27th session of the IPCC

Scientists from the Nobel-winning **Intergovernmental Panel on Climate Change (IPCC)** met in Valencia in November to sign off key recommendations for decision makers ahead of the December climate change meeting in Bali. The resulting 23-page report is a synthesis of three IPCC reports issued earlier this year — and it is the IPCC's starkest warning yet on climate change. The paper, which is the fruit of five days of discussions among the scientists, concludes that evidence of the planet's warming is now "unequivocal" and the effects on the climate system could be "abrupt or irreversible." It forecasts that an increase of the earth's temperature by 1.5 to 2.5 degrees C will endanger 20-30 per cent of the planet's plants and animals and that some 75-250 million people in Africa will suffer from water shortages by 2020. The report has prompted a UN demand for politicians to smash the deadlock on addressing the threat of climate change.
www.ipcc.ch

20th anniversary ozone protection awards

The **20th Anniversary Ozone Protection Awards** recognize the outstanding work of individuals, organizations and companies to protect the Earth's ozone layer. Given out in September by UNEP and the Parties to the Montreal Protocol, they reward scientific contributions to understanding ozone depletion, as well as policy implementation and awareness raising on ozone. One interesting category is the 'Public Awareness Award', which rewarded "outstanding work in raising awareness about ozone depletion and the global effort to address it". One laureate is the Beijing Organizing Committee for the 2008 Olympic Games, for its "high level of commitment to using the preparations for the Olympic Games to promote ozone layer protection and the use of ozone friendly equipment". Other winners in the category include India's Bank of Maharashtra for its "innovative ozone day promotions", Australia's Cancer Council — for its 'Slip, Slop, Slap' campaign to focus the Australian public on how to reduce exposure to ultraviolet radiation — and Niger's National Ozone Unit.
http://ozone.unep.org/20th_Anniversary/index.shtml

In 2001, the General Assembly declared 6 November of each year as the **International Day for Preventing the Exploitation of the Environment in War and Armed Conflict**. This was a strong message that damage to the environment in times of armed conflict impairs ecosystems and natural resources long after the period of conflict, often extending beyond the limits of national territories and the present generation. In his message for this year's event, UN Secretary General Ban Ki-Moon said: "Taking ecological considerations into account is crucial if we are to avoid longer-term environmental problems that can undermine security and development, and lead to further cycles of conflict and displacement". UNEP's Post-Conflict and Disaster Management Branch, based in Geneva, works on areas of the world where the environment is impacted by conflicts and disasters, or where the environment is a factor contributing to conflict. UNEP is currently working with the government of the Democratic Republic of the Congo and UN partners to mitigate the impact of displacement in the eastern part of the country, where several camps have recently been established on the boundary of theVirunga National Park — a World Heritage Site which is home to half of the total remaining population of mountain gorillas.
http://www.un.org/depts/dhl/environment_war/index.html

international day for preventing the exploitation of the environment in war and armed conflict

matters of judge

Issues arising from pollution of the seas are far from new — as the dates of such major oil spills as the Amoco Cadiz (1978), Exxon Valdez (1989), Erika (1999) or Prestige (2002) prove. What probably is new is that, unlike these pollution incidents, such emerging issues as the depletion of fish stocks due to overexploitation, or the rise in sea-level as a result of climate change, are global and have a universal impact.

International law is relatively well equipped to deal with these issues. The 1982 United Nations Convention on the Law of the Sea dedicates its Part XII to the "Protection and Preservation of the Marine Environment". States are required, among other things, to adopt national and international rules to prevent, monitor, reduce and control pollution from land-based sources, seabed activities, dumping, vessels and the atmosphere. The Convention also lays down rules on conserving the living resources of the high seas and the exclusive economic zone and places obligations on flag States.

Unlike many other international treaties, the Convention also provides a compulsory mechanism for settling disputes arising out of its interpretation or application. Any dispute relating to the Convention may be submitted at the request of any State Party to an international court or tribunal, subject to some limitations and optional exceptions. States Parties are free, however, to select one or more of the following as their preferred means for settling disputes: the International Tribunal for the Law of the Sea (a judicial institution set up by the Convention, with its seat in Hamburg, composed of 21 judges who are experts in the law of the sea and elected by the States Parties), the International Court of Justice, arbitration and special arbitration. Parties to a dispute may submit a case to the Tribunal through a special agreement or through a unilateral application if both have made a declaration selecting it, deposited with the Secretary General of the United Nations. Otherwise arbitration is the compulsory mechanism available to the parties to the dispute, though — unlike recourse to the Tribunal — this would incur costs.

States have not yet made extensive use of the Convention's large number of environmental rules in international litigation. The Tribunal has so far predominantly dealt with marine environmental issues in the context of provisional measures proceedings, pending the constitution of an arbitral tribunal — a specific procedure which may be used whenever arbitral proceedings are instituted. As constituting such a tribunal may take some months, it may be necessary in the meantime to preserve the respective rights of the parties or to prevent serious harm being caused to the environment. The Tribunal is then competent, at the request of any party, to prescribe provisional measures.

ment

by Philippe Gautier

To date, the following cases have been submitted on that basis:

- The Southern Bluefin Tuna Cases submitted by New Zealand and Australia against Japan in 1999, concerned a dispute on conservation measures for the Southern Bluefin Tuna stock and the allocation of catch relating to it;

- Ireland submitted The MOX Plant Case against the United Kingdom in 2001 which concerned the potential harmful effect of the operation of the MOX nuclear plant in Sellafield on the Irish Sea;

- In 2003, the Case concerning Land Reclamation by Singapore in and around the Straits of Johor was submitted to the Tribunal by Malaysia against Singapore. This related to the prejudice allegedly caused to the rights of Malaysia and to the environment by land reclamation work carried out by Singapore.

A case is also currently pending before the Tribunal between Chile and the European Community, concerning the exploitation of swordfish: Chile claims that the European Community did not ensure that European fishing vessels comply with its obligations under the Convention on conserving swordfish stocks.

Given the attention attracted by environmental issues, it is reasonable to expect that more cases concerning pollution or fisheries matters will be submitted to the Tribunal or to one of its chambers in future. The following elements should be kept in mind by potential parties to an environmental dispute:

- Legitimate concern is often expressed about the length of international proceedings. The practice of the Tribunal — which delivers its decisions in urgent proceedings within one month of their institution — demonstrates that cases brought before it are dealt with swiftly. This underlines the useful role that it could play, particularly when compared to the complexities of proceedings relating to international environmental claims submitted to municipal courts: proceedings in the Amoco Cadiz case before US courts took 12 years.

- Provisional measures proceedings may be of particular interest to States faced with environmental pollution where there is a risk of serious harm to the marine environment. Examples may relate to urgent clean-up or mitigation measures, or to measures impartially to assess the extent of environmental damage.

- The Tribunal has paid great attention in its jurisprudence to the procedural rights of States and taken measures to preserve them. This concerns, for example, the duty of a party to disclose information on a potentially harmful activity or to cooperate in assessing the risk of it.

- When pollution incidents cause prejudice to a large number of private persons, States may be reluctant to engage in international litigation because international law requires that the private victims first exhaust the remedies available to them before the local courts of the State which allegedly caused the damage. This, however, does not apply in cases where the breach of international law concerns a right which belongs directly to the applicant State. Where a coastal State is faced with serious damage to its marine environment — with resulting prejudice caused to individuals — it is reasonable to contend that an international claim would relate to a breach of its own right; it would be hopelessly unrealistic to require hundreds or thousands of victims first to institute proceedings before foreign local courts before a claim could be lodged before an international tribunal.

The Tribunal is competent to adjudicate not only disputes relating to the Convention, but ones relating to any other agreement which confers jurisdiction on it. States then have the option to include provisions conferring jurisdiction on the Tribunal in their agreements — including ones on environmental or fisheries matters. It is also plausible to maintain that such special agreement could also cover agreements concluded between States and private entities (such as a classification society or insurance company) to assess, for example, the amount of damage caused by a casualty.

Finally, the Tribunal is entitled to render advisory opinions, and parties may prefer to request one than to submit a dispute to it. Requesting an opinion — which could be given urgently — could help them find a solution through negotiations or other means. A request, for example, could be submitted by a State faced with a serious pollution incident in order to determine which claims would be admissible.

The need to protect and preserve the marine environment cannot be emphasized strongly enough. The manifest role that the Convention already plays by ensuring that States have recourse to a binding dispute settlement mechanism promoting peaceful settlement highlights the importance of the part that the Tribunal could have in resolving future marine environment disputes.

WWW

Marine Environment: Useful Links

This page contains links to websites from governments, international organizations, non-governmental organizations, businesses, media, and other groups from around the world to help you research issues related to the marine environment. We have compiled these links from our own review of the vast amount of information available on the Internet to help you to find the most relevant sources for your research. Our Planet magazine does not, however, endorse the viewpoints of any of the groups to which we link, and we cannot guarantee the accuracy of the information posted on these sites. Rather, we hope to provide you with a broad range of opinions and perspectives.

International bodies

www.imo.org
The International Maritime Organization, which first met in 1959, was created in order to develop and maintain a comprehensive regulatory framework for shipping. Its remit today includes safety, environmental concerns, legal matters, technical co-operation, maritime security and the efficiency of shipping.

http://www.cms.int/
The Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS) is an intergovernmental treaty which aims to conserve wildlife and habitats on a global scale.

www.un.org/Depts/los/doalos_activities/about_doalos.htm
The UN's Division of Ocean Affairs and Law of the Sea (DOALOS) reports back to the General Assembly on matters relating to the law of the sea and ocean affairs. It also formulates recommendations to the Assembly and other intergovernmental forums aimed at promoting a better understanding of the UN Convention on the Law of the Sea.

www.fao.org
The website of the FAO's Fisheries and Aquaculture Department contains information on fisheries statistics, fish utilization, trade & fisheries, fisheries governance, ecosystems and fisheries research.

www.ioc.unesco.org
UNESCO's Intergovernmental Oceanographic Commission (IOC) provides UN member states with an essential mechanism for global cooperation in the study of the ocean. It assists governments to address their individual and collective ocean and coastal problems through the sharing of knowledge, information and technology and through the coordination of national programmes.

http://www.coastalmanagement.com/
Coastal Zone Management (CZM) is an Australia-based company providing consultancy services focused on the management of the coastal zone. Its clients include the Australian National Oceans Office, the Dubai Municipality, Taiwan's Ministry of the Interior and the UNFCC secretariat in Bonn (Germany).

Ocean to ocean

www.ccamlr.org
Antarctic: The website of the Commission for the Conservation of Antarctic Marine Living Resources, whose objective is to conserve marine life of the Southern Ocean.

www.pame.is
Arctic: Information on the Protection Arctic Marine Environment (PAME) – whose mandate is to address policy and non-emergency pollution prevention and control measures for the protection of the Arctic marine environment from both land and sea-based activities.

www.helcom.fi
Baltic Sea: The Helsinki Commission, or Helcom, works to protect the marine environment of the Baltic Sea from all sources of pollution through intergovernmental co-operation between Denmark, Estonia, the European Community, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden.

www.blacksea-commission.org
Black Sea: The Black Sea Commission provides expertise and information on protecting the Black Sea from pollution, conserving biodiversity and managing fisheries.

www.ospar.org
North-East Atlantic: The official website of the 1992 OSPAR Convention – the current instrument guiding international cooperation on the protection of the marine environment of the North-East Atlantic.

www.ropme.com
Middle East: ROPME (the Regional Organization for the Protection of the Marine Environment) brings together Bahrain, I.R.Iran, Iraq, Kuwait, Oman, Qatar Saudi Arabia and the United Arab Emirates, to cooperate in "protecting their common marine environment in spite of the existing geopolitical boundaries".

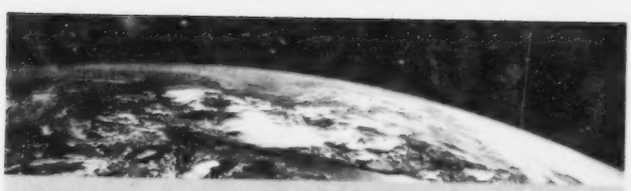
www.sacep.org
South Asian Seas: The South Asia Co-operative Environment Programme (SACEP) is an inter-governmental organization established in 1982 by the governments of South Asia to promote and support protection, management and enhancement of the environment in the region. Its member countries are Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.

http://www.sprep.org
South Pacific: SPREP, the South Pacific Regional Environment Programme, is a regional organisation established by the governments and administrations of the Pacific region to look after its environment. It has grown from a small programme attached to the South Pacific Commission (SPC) in the 1980s into the Pacific region's major intergovernmental organisation charged with protecting and managing the environment and natural resources. It is based in Apia, Samoa, with over 70 staff.

www.unep.org

www.unep.org/regionalseas - Regional Seas – The Regional Seas programme, launched in 1974, aims to address the accelerating degradation of the world's oceans and coastal areas through the sustainable management and use of the marine and coastal environment. It does so by engaging neighbouring countries in comprehensive and specific actions to protect their shared marine environment. Today, more than 140 countries participate in 13 Regional Seas programmes established under the auspices of UNEP. Along with the regional pages, the Regional Seas website also links to thematic pages such as the Marine Litter website.

www.gpa.unep.org - Global Programme of Action for the Protection of the Marine Environment from Land-based Activities – The only intergovernmental programme that addresses the links between freshwater and the coastal environment. This is a key issue, as some 80 per cent of the pollution load in the oceans originates from land-based activities. As well as comprehensive information on the GPA, the webpage includes a link to the "networks of practitioners" — an online interactive meeting place for stakeholders to share their experience and ideas on various issues as they relate to the GPA.



Out there

Blog Action Day
On 15 October, 20,600 blogs around the globe wrote about environment-related topics as part of the first-ever edition of Blog Action Day, an event partnered by UNEP. Nineteen of the "Technocrati Top 100 blogs" took part in the action, including Mashable, Treehugger and the Official Google Blog. EU Environment Commissioner Stavros Dimas — himself a blogger — took part, holding a special live internet chat to coincide with Blog Action Day.

www.ecotippingpoints.com
The ecotippingpoints website features nearly 100 environmental success stories collected from around the world by a team of scientists and journalists. The stories display a diversity of 'fail but have something important in common: a 'lever' referred to as an 'Eco tipping point' — that is, a community-based process switching environmental decline to a course of restoration and sustainability. The website offers lessons from the stories while explaining how Eco-tipping points work and what it takes to create them.
http://green-blog.org/

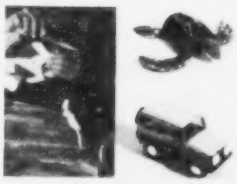
Green Blog is a multi-author environment blog providing green news, advice and insights from around the world. It includes features such as 'Green consumer', 'Business & politics', 'Green quote of the week', and a 'Take Action!' category.

products

Flipping flotsam

Every day, hundreds of discarded flip flops wash up on beaches around the globe. Kenya's shore is littered with footwear from as far afield as Japan, Indonesia and Malaysia — and the colourful rubber prevents turtles from laying their eggs on the beach and their freshly hatched babies from returning to the ocean. Ten years ago, local people started collecting the non-degradable waste to make toys, fishing buoys and cushion stuffing. The Flip Flop Recycling Project, launched in 2005, took the project further, extending production to jewelry, sculptures key rings, belts and bags made from the flip flop waste to help local communities improve their livelihoods. The initiative was recently expanded to begin reusing trash from low-income communities in Nairobi such as the Kibera slum.

http://www.uniqueco-designs.com



Sustainable fish fingers

British food company Young's has introduced what it says is the UK's "first 100% sustainable cod fish finger". The dish is made with line-caught, 100% sustainable wild Alaskan Pacific cod certified by the Marine Stewardship Council (MSC). Young's was awarded the 2007 Seafish Award for Outstanding Achievement in recognition of its efforts to support sustainable fishing. According to MSC Chief Executive Rupert Howes: "With these fish fingers, and the many more MSC-labelled Young's products like it, Young's is helping to shape the future of fishing by offering their customers the best environmental choice in seafood".

www.saveourfishfingers.co.uk

Wireless energy monitor

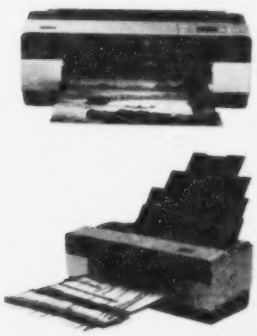
The Owl Wireless Energy Monitor is an innovative gadget which shows you how much energy you are using around your house at any given time. When lights and appliances are turned on, the Owl's easy-to-read LCD monitor reveals exactly how much electricity is being used, how the cost of electricity per hour changes and how much harmful CO2 your home is emitting. The device's producers say that by simply turning off appliances when they are not required, consumers can save up to 25 per cent of their electricity usage — hence cutting both their monthly bills and their households' harmful carbon emissions. The beauty of the Owl is that it gives people a clear view of how much energy they are wasting, and how much they could save by taking simple steps like not leaving televisions on standby, washing clothes at cooler temperatures, removing unused telephone chargers from the mains and using tumble driers as little as possible. The device also shows you how much energy you are still using when you go to bed at night — clearly signaling any appliances that have been left on needlessly. An innovative way to become more energy efficient.

http://www.earthwhile.co.uk/Shop:Energy_Measuring:Owl_Wireless_Energy_Monitor:Product.html

Green printing

Epson's Stylus Pro 3800 printer won the 2007 Ecohitech Award — an Italian prize rewarding the greenest hi-tech processes, products, systems and services. Compared to the previous models, the Pro 3800 produces 44 per cent less estimated CO2 emissions during its product life and uses 55 per cent fewer resources during production. The printer is Ecoleaf certified — a Japanese ecolabel which recognizes that a Life Cycle Assessment has been carried out on a product.

www.epson.com



Energy-efficient computer

Computers account for 40 to 60 per cent of the energy used by office equipment — second only to lighting in terms of electricity guzzling. Desktops are the big culprits, using around 70W when active compared to laptops which require between 12 and 22W. A newcomer to the market, the SC20 Smart Client computer, is now raising the stakes, performing "all the business functions of a bulky PC using just ten per cent of the power", according to Cranberry, its manufacturer. The computer, which is the size of a paperback book, has an ultra-efficient microprocessor and "offers a genuinely viable and greener alternative to the vulnerable and power-hungry office PC," says Cranberry CEO Simon Pomsford.

http://www.cranberrynet.com

Reusable bags

The world is seeing a backlash against plastic bags, which are increasingly seen as polluting and environmentally unsustainable. Bhutan, Rwanda, Bangladesh and South Africa have banned them altogether, as have San Francisco and Mumbai — and other cities including London and Paris could soon follow suit. In Taiwan and a growing number of European countries, shops now charge for them. As the plastic bag falls from grace, the reusable bag has become a hip environmental statement. Fashion designer Anya Hindmarch made a splash earlier this year with a canvas tote displaying the words 'I'm Not A Plastic Bag', which became a fashion phenomenon after it was given out in the 2007 Oscar goodie bags. It was then seen on the arms of throngs of celebrities and proceeded to sell out within hours in high street shops. Beyond the world of fashion, more and more shops are now offering grocery bags made of washable fabric and intended to last for years — and a wide range of reusable bags are available on www.reusablebags.com and as far and wide as Japan, Canada and India. UNEP's Billion Tree Campaign even has its own tote, which comes in three colours and spells out 'Plantemos Para El Planeta' ('Plant for the Planet').

http://www.kannanoa.com/

Colour-coded rubbish bin

Brazil has always been known for its trailblazing sense of design — and the country's latest trendsetting could be the introduction of a spate of eco-friendly products by Brazilian companies, such as a rubbish bin to separate trash into four different categories. With its blue, green, red and yellow lids, the 'Recicla Facil' (Easy Recycle) garbage bin is easy to use and ideal for teaching children to sort their waste. The bin can be bought online for those living in Brazil, but manufacturers have also exported it to Spain, Portugal and Italy — a sign that rubbish-sorting could be gaining momentum around the world.

http://planetasustentavel.abril.com.br

Cameron Diaz

Once, as Kermit the frog famously lamented, it was "not easy being green" in showbiz. Now it is so fashionable that it sometimes seems there is a whole ecosystem of Hollywood big beasts competing to be more environmentally aware. But Cameron Diaz is both one of the biggest of them, and a pioneer — a star who walked the talk before either became popular, and was one of the first to buy a hybrid car.

Indeed, as she explains it, she seems to have been green before she knew it. The daughter of a second generation Cuban American oil worker and of an import/export broker of English, German, and native American descent, she owes much of her environmental concern to her maternal grandmother's influence in rural California when she was a child.

"My grandmother raised her own livestock in her backyard, her own vegetables in her backyard", she remembers. "I watched her reuse tinfoil and plastic bags. She would make soap out of the fat drippings off of the meat she cooked. Nothing went to waste. Everything was reused and recycled.

"She lived a true sustainable existence. Everything she took from the land she put back. Everything that she put back, she would take out again. It was a continuous cycle. And I witnessed that, and I was influenced a lot by that. My mother was influenced by that and she passed it on to me."

Although she originally wanted to be a zoologist — and kept two pet snakes, and bred mice to feed them — she says she was originally put off by the rhetoric of the environmental movement. "I really didn't connect to what was being said, and how it was being said. I'm a selfish American. I don't want to give it all up".

But then, she adds: "I found I was already practicing the basics, everything from recycling to composting to saving energy to hybrid cars. I had been pursuing those things myself without knowing that they were part of the movement. Then I started listening more closely to what was being said because I was looking for a way in. I wanted to do more than I was doing just for myself. I wanted to help other people do more."

Sure enough, she has devoted most of her attention to putting the message across, often in a surfer-girl patois that reaches the young. And indeed, she says, "surfing is a religious experience for me. You get to be part of Mother Nature and experience its power."

Nominated for the Golden Globe four times as an actress, she has promoted hybrid vehicles, energy saving lightbulbs, and other carbon saving measures in a series of advertisements with Gwyneth Paltrow, and fronted a television series, Trippin', which gets across green messages by taking celebrities to environmentally important places. Last summer she joined Al Gore to promote the Live Earth concerts.

"This is", she says, "the only issue in the history of mankind that affects every single one of us. It is everyone's cause. It's the one thing that we actually all share in common: the planet."

She insists that the message must be put positively. "We shouldn't look at it as 'Holy s**t! We're all going to die! We should look at it as 'Yay! We're all going to live!' It isn't about cutting everything out. It's about creating something better. We have the answers and we have the power, and the resolve, and the ability to change it. If everyone just changed one aspect of their life, if they just did one thing differently, that alone is a step closer to solving the problem". G.L.

www.unep.org/ourplanet